



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/548,892	04/13/2000	Thomas I. Insley	52942USA6A	7476

7590

04/03/2002

Karl G Hanson
Office of Intellectual Property Counsel
3M Innovative Properties Company
P O Box 33427
St Paul, MN 55133-3427

EXAMINER

MARKHAM, WESLEY D

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 04/03/2002

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/548,892

Applicant(s)

INSLEY ET AL.

Examiner

Wesley D Markham

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 23 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 9-17 and 22 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 8 and 18-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12. 6) ☐ Other:

DETAILED ACTION

Continued Prosecution Application

1. The request filed on January 15, 2002 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/548,892 is acceptable and a CPA has been established. An action on the CPA follows. Please note that Claims 1 – 24 are currently pending in the instant application, and Claims 23 – 24 stand withdrawn from further consideration by the examiner as being drawn to a non-elected invention.

Information Disclosure Statement

2. Acknowledgement is made of the supplemental IDS submitted by the applicant on January 15, 2002 as paper #12, and the document listed thereon has been considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by IBM Technical Disclosure Bulletin, December 1961, for the reasons set forth in paragraph

Art Unit: 1762

6 of the final rejection (paper #6, mailed on July 11, 2001) and paragraphs 12 – 14 of the non-final rejection (paper #4, mailed on April 11, 2001).

5. Claims 1, 3 – 4, 7, and 10 – 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sidles et al. (USPN 4,351,789) for the reasons set forth in paragraph 7 of the final rejection (paper #6, mailed on July 11, 2001) and paragraphs 15 – 17 of the non-final rejection (paper #4, mailed on April 11, 2001).
6. Claims 1 – 4, 7, 12, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Popov et al. (Russian Document Number 423483).
7. Regarding independent Claim 1, Popov et al. teach a method of making a charged filter material, the method comprising condensing vapor from an atmosphere of a controlled environment onto a dielectric article (e.g., polypropylene or polyamide filaments) to form a condensate thereon, and then drying (i.e., removing condensate from) the article (See especially example 1). Please see applicant's specification at page 5, line 28 through page 6, line 15, which notes that the applicant considers polypropylene (as taught by Popov et al.) to be a "dielectric article" as required by the claims. In addition, as the applicant has defined an "electret" to be a dielectric material that exhibits at least a quasi-permanent electric charge (see page 3, lines 1 – 2 of applicant's specification), the charged filter material (which is a dielectric material) of Popov et al. is an electret. Further, the examiner notes that the applicant has defined a "controlled environment" to mean a surrounding whose volume,

Art Unit: 1762

pressure, temperature, or a combination thereof, can be regulated and/or altered in a predetermined manner. Popov et al. teach that air saturated with vapors of a liquid having a given dielectric constant is passed through the layer of filaments (i.e., the cloth) (see Example 1). As pressure is defined as force per a given area, the air passing through the layer (i.e., which inherently exerts a force on the layer) alters the pressure of the "environment". As such, the process of Popov et al. includes condensing from a "controlled environment". Also, please note that the simple fact that Popov et al. teach that air can be flowed through the "environment" is sufficient to render the environment of Popov et al. a "controlled environment" (i.e., a surrounding whose pressure can be altered in a predetermined manner) as required by Claim 1

8. Popov et al. also teach all the limitations of Claims 2 – 4, 7, 12, and 22 as set forth above in paragraph 7 and below, including a method wherein / further comprising:

- Claim 2 – The electret exhibits a persistent electric charge. Specifically, Popov et al. teach that prior art charged filter materials lose their charge in the absence of an electrical field and that their method overcomes this problem (i.e., the cloth has a persistent electric charge) (background section of Popov et al.). Further, the examiner notes that Popov et al. teach all the process steps / limitations of Claim 2. Therefore, unless essential process steps / limitations are missing from the applicant's claims, the electret of Popov et al. would have inherently exhibited a persistent electric charge.

- Claim 3 – The dielectric article comprises a nonconductive polymeric material (Example 1). Specifically, Popov et al. teach polypropylene, which the applicant considers to be a nonconductive polymeric material (see page 5, line 28 through page 6, line 15 of the applicant's specification).
- Claim 4 – The condensate includes a polar liquid (Example 1). Specifically, Popov et al. teach ethyl alcohol, which the applicant considers to be a polar liquid (see page 5, lines 15 – 22 of the applicant's specification).
- Claim 7 – The step of condensing comprises placing an article at a temperature T1 in contact with the vapor, the vapor being at a temperature T2, where T1 is sufficiently less than T2 such that the vapor condenses on the article. While the relative temperatures of the vapor and the article are not explicitly taught by Popov et al., Popov et al. do explicitly teach that the vapors are condensed to form a liquid on the article (Example 1). Thus, the limitation that the vapor is at a temperature T2, wherein the temperature of the article T1 is sufficiently less than T2 such that the vapor condenses on the article is inherently met. Specifically, condensation as taught by Popov et al. would not occur if this condition was not met.
- Claim 12 – The condensate is selected from the group consisting of acetone, methanol, ethanol, liquid carbon dioxide, butanol, or a combination thereof (Example 1).

- Claim 22 – The electret exhibits a persistent electric charge, the dielectric article comprises a nonconductive polymeric material, and the condensate comprises a polar liquid (see discussion of Claims 2, 3, and 4 above).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
11. Claims 1 – 4, 7, 9 – 11, 14 – 17, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angadjivand et al. (USPN 5,496,507) in view of Pike et al. (USPN 5,759,926) for the reasons set forth in paragraph 11 of the final rejection (paper #6, mailed on July 11, 2001) and paragraphs 19 – 21 of the non-final rejection (paper #4, mailed on April 11, 2001).

12. Claims 10, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popov et al. (Russian Document Number 423483) in view of Coufal et al. (USPN 5,280,406).
13. Popov et al. teach all the limitations of Claims 10, 11, and 13 as set forth in paragraphs 7 – 8 above, except for a method wherein the polar liquid is an aqueous liquid (Claim 10), preferably consisting essentially of water (Claim 11), or comprises a fluorocarbon (Claim 13). However, Popov et al. do teach a number of suitable liquids, such as isopropyl alcohol, methanamide, ethyl alcohol, and dimethylformamide, and teach that the liquid utilized should have a dielectric constant of from 15 to 115 (background section). Coufal et al. teach that it was known in the art of charging a dielectric article to form an electret at the time of the applicant's invention that water could be used as an efficient charging medium, and that water has a dielectric constant of 78.25 (Col.3, lines 7 – 61). The dielectric constant of water, as taught by Coufal et al., is within the range desired by Popov et al. Therefore, it would have been obvious to one of ordinary skill in the art to utilize water as the liquid vapor in the process of Popov et al. with the reasonable expectation of (1) success, as Popov et al. teach a desired range of dielectric constant values, water having a dielectric constant that falls within that range, and Coufal et al. teach that water is an effective charging medium for charging a dielectric article to form an electret, and (2) obtaining the benefits of utilizing water as opposed to the liquids taught by Popov et al., such as reduced cost and ease of

Art Unit: 1762

availability. These benefits would have easily been recognized by one of ordinary skill in the art at the time of the applicant's invention. With regards to Claim 13, Coufal et al. teach that fluorocarbons such as dichlorodifluoromethane and trichlorotrifluoroethane are the best liquids for charging a dielectric article (Col.3, lines 55 – 61). Therefore, it would have been obvious to one of ordinary skill in the art to utilize one of these fluorocarbons as the liquid vapor in the process of Popov et al. with the reasonable expectation of successfully charging the article using a liquid that is one of the best liquids for charging, as taught by Coufal et al.

14. Claims 14 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popov et al. (Russian Document Number 423483) in view of Angadjivand et al. (USPN 5,496,507).

15. Popov et al. teach all the limitations of Claims 14 – 17 as set forth in paragraphs 7 – 8 above, except for a method wherein the article is non-woven fibrous web (Claim 14) comprising melt blown microfibers (Claims 15 – 16), preferably comprising polypropylene, poly-(4-methyl-1-pentene), or a combination thereof (Claim 17).

Specifically, Popov et al. teach a polypropylene filament cloth in general

(background and Example 1), but do not teach the specifics of the cloth. However, it is the goal of Popov et al. to produce a charged filter cloth (background).

Angadjivand et al. teach that polypropylene non-woven, melt blown, microfiber webs were known at the time of the applicant's invention to be suitable materials for use in the production of electrically charged filter materials (Col.2, lines 40 – 67, and

Art Unit: 1762

Col.3, lines 1 – 43). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a polypropylene non-woven, melt blown, microfiber web as the cloth in the process of Popov et al. with the reasonable expectation of (1) success, as Angadjivand et al. teach that polypropylene non-woven, melt blown, microfiber webs are suitable materials for use in the production of electrically charged filter materials, and (2) choosing a specific example of the genus of polypropylene filament materials, which is broadly taught by Popov et al.

Allowable Subject Matter

16. Claims 5 – 6, 8, and 18 – 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
17. The examiner's reasons for indicating allowable subject matter are set forth in paragraphs 23 – 24 of the non-final rejection, paper #4, mailed on April 11, 2001.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.
19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone

Art Unit: 1762

numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

20. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Wesley D Markham
Examiner
Art Unit 1762



WDM
March 29, 2002



SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700